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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Cyril Delattre

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EXAMINER

FORMAN, BETTY J

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,274	<b>Applicant(s)</b> DELATTRE ET AL.	
	<b>Examiner</b> BJ Forman	<b>Art Unit</b> 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 26-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/06</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I, Claims 1-25 in the reply filed on 29 April 2009 is acknowledged.

Claims 26-32 are withdrawn from prosecution.

Claims 1-25 are under prosecution and discussed below.

### ***Claim Objections***

2. Applicant is advised that should claim 1 be found allowable, Claims 23-24 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 is indefinite for the recitation "with respect to the active surface and/or on their slope opposite the work zone". The recitation is indefinite because it is unclear how "with respect to" defines the wetting relationship between the active surface and borders. The recitation is further indefinite because "their slope" lack antecedent basis in the borders of Claim 1.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 5, 7-9, 11, 16, 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Brennan (U.S. Patent No. 6,210,894, issued 3 April 2001).

Regarding Claim 1, Brennan teaches a work box (3) provided with opening for introducing and extracting liquids (1, 2) a substrate in the work box comprising an active surface that is non-wetting (6) a plurality of work zones on the active surface, each surrounded by a border that is non-wetting wherein the borders are not touching and have no common edge (Fig. 3) wherein the opening are arranged for introducing fluid to

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cover the surface of the substrate (flooded) and the borders have a geometry such that when the liquid of interest is extracted, a drop of liquid remains in contact with the work zone (Column 7, lines 37-59 and Column 8, lines 45-57). It is noted that the instant specification (§§ 83-87) defines the means for introducing and extracting liquids encompasses openings.

Regarding Claim 2, Brennan teaches the device wherein the work zone is in the same plane as the active surface (Fig. 3).

Regarding Claim 3, Brennan teaches the device wherein the work zone is a zone of chemical interaction with the drop captured by its borders (Column 7, lines 37-59).

Regarding Claim 5, Brennan teaches the device wherein the work zone is a chemical sensor (Example 4, Column 9).

Regarding Claim 7, Brennan teaches the device wherein the work zone is used to detect a biological species (Example 4, Column 9). It is noted that the claim defines an intended use for the device. While Brennan teaches the use as recited, Applicant is advised that the intended use recited in the claim does not further limit the device of Claim 1.

Regarding Claims 8-9, Brennan teaches the device wherein the work zone is functionalized with an oligonucleotide probe to interacting with a target (Example 4, Column 9).

Regarding Claim 11, Brennan teaches the device wherein the substrate is glass (Column 7, lines 14-15).

Regarding Claim 16, Brennan teaches the device wherein the borders are wetting for the liquid of interest as illustrated by the droplet contact of the border (Fig.3).

Regarding Claims 23 and 24, Brennan teaches the device of Claim 1 as discussed above. Claims 23 and 24 do not define any additional structures. Therefore Brennan also anticipates the system and chip of Claims 23 and 24.

Regarding Claim 25, Brennan teaches the device wherein the chip is a nucleic acid chip (Examples 1-4).

7. Claims 1-3, 5, 7-9, 11-12, 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Papkovsky et al (WO 03/059518, filed 16 January 2003).

Regarding Claim 1, Papkovsky teaches a work box (2) provided with opening for introducing and extracting liquids (10) a substrate in the work box comprising an active surface that is non-wetting (6) a plurality of work zones on the active surface, each surrounded by a border that is non-wetting (5) wherein the borders are not touching and have no common edge (Fig. 1) wherein the openings are arranged for introducing fluid to cover the surface of the substrate and the borders have a geometry such that when the liquid of interest is extracted, a drop of liquid remains in contact with the work zone (Abstract, page 10 and Fig. 1-2).

Regarding Claim 2, Papkovsky teaches the device wherein the work zone is in the same plane as the active surface (Abstract, Fig. 1).

Regarding Claim 3, Papkovsky teaches the device wherein the work zone is a zone of chemical interaction with the drop captured by its borders (pages 7-8).

Regarding Claim 5, Papkovsky teaches the device wherein the work zone is a chemical sensor (pages 7-8).

Regarding Claim 7-9, Papkovsky teaches the device wherein the work zone is used to detect a biological species e.g. protein (page 16). It is noted that the claim defines an intended use for the device. While Papkovsky teaches the use as recited, Applicant is advised that the intended use recited in the claim does not further limit the device of Claim 1.

Regarding Claims 11-12, Papkovsky teaches the device wherein the substrate is an organic polymer e.g. polymethyl methacrylate (page 6, line 8-9).

Regarding Claim 17, Papkovsky teaches the device wherein the borders are obtained by moulding (page 6, line 11).

Regarding Claims 23 and 24, Papkovsky teaches the device of Claim 1 as discussed above. Claims 23 and 24 do not define any additional structures. Therefore Brennan also anticipates the system and chip of Claims 23 and 24.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4, 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan (U.S. Patent No. 6,210,894, issued 3 April 2001) in view of Heller (U.S. Patent No. 6,017,696, issued 25 January 2000).

Regarding Claims 4, 12-15, Brennan teaches a work box of Claim 1 as discussed above. Brennan does not teach an electrochemical microcell wherein the substrate comprises an organic polymer and metal and wherein the work zone has a rectangular/square shape.

However, Heller teaches these elements wherein substrates comprise a metal (Column 15, lines 28-30) wherein polycarbonate substrates are preferred because they have the lowest background and Column 34, lines 34-35) and further teaches that it is advantageous to construct an electrochemical microcell in order to extract specific molecules from a sample (Column 12 lines 35-54). Heller further teaches numerous advantages provided by the electrodes including stringency control, rapid transport target molecules and rapid removal of non-specific materials (Column 24, 19-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Brennan by constructing an electrochemical microcell in order to extract specific molecules from a sample as desired in the art (Heller, Column 12, lines 35-45).

Furthermore, It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the circular work zones of Brennan by providing rectangular/square work zones as taught by Heller. The claimed work zone



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shapes would have been an obvious modification of the Brennan work zones because the ordinary artisan would have expected the work zones to function equally regardless the shape.

The courts have stated that claimed dimensions of a known device do not distinguish over the prior art device when the claimed device would not perform differently from the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan (U.S. Patent No. 6,210,894, issued 3 April 2001) in view of Heller (U.S. Patent No. 6,017,696, issued 25 January 2000) and Ikeda et al (U.S. Patent No. 5,582,697, issued 10 December 1996).

Regarding Claim 6, Brennan teaches the device of Claim 1 and Heller teaches the advantages of using electrode work zones as discussed above regarding Claim 4. While Heller does not specifically teach that the electrodes actuate, Ikeda teaches a similar biosensor wherein the sample detection occurs via electrode actuator (Example 3). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the actuation of Ikeda to the device of Brennan and/or Heller. One of ordinary skill in the art would have been motivated to do so based on its well-know use in the art as taught by Ikeda.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan (U.S. Patent No. 6,210,894, issued 3 April 2001) in view of Goldberg et al (U.S. Patent No. 5,959,098, issued 28 September 1999).

Regarding Claim 10, Brennan teaches the device of Claim 1 as discussed above wherein the work zones are wetting for the liquid of interest (Example 4) but does not teach blank zone which are non-wetting. However, hybridization arrays having blank features were well known in the art at the time the invention was made as taught by Goldberg who teaches the "standard optimization chip" has blank features (Column 7, lines 52-61). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the blank features of Goldberg to the array of Brennan. The ordinary artisan would have been motivated to do so based on teaching of Goldberg and for the obvious benefit of optimizing the chip.

12. Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan (U.S. Patent No. 6,210,894, issued 3 April 2001) in view of Papkovsky et al (WO 03/059518, filed 16 January 2003).

Regarding Claims 12 and 17, Brennan teaches the device of Claim 1 wherein the pattern is provided by patterned removal of fluorosiloxane (Example 1) but does not teach patterning by stamping or moulding. However Papkovsky teaches a similar device wherein the pattern substrate is provided by moulding organic polymers (page 6,

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lines 8-14). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the patterning of Brennan by using the injection moulding of Papkovsky. One of ordinary skill in the art would have been motivated to do so, with a reasonable expectation of success, based on the well-known practice taught by Papkovsky. The artisan would have been further motivated to do so based on available manufacturing tools.

13. Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan (U.S. Patent No. 6,210,894, issued 3 April 2001) in view of Yuen (U.S. Patent Application Publication No. 2002/0168624, published 14 November 2002).

Regarding Claims 18-22, Brennan teaches the device of Claim 1 as discussed above. Brennan also teaches inlet (1) and outlet ports (2) wherein the inlet is connect to the reagent manifold (Fig. 7). Brennan further teaches the assembly is enclosed in a glove box which can be evacuated or purged with argon e.g. positive displacement or flushing (Column 8, lines 58-64) which clearly suggests a pump and/or vacuum is attached to evacuate or purge the chamber. While the reference does not specifically teach a pump and vacuum these tools were well known in the art for evacuating and purging hybridization chambers as taught by Yuen (¶ 35, 42). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the well known pump and vacuum to the device of Brennan. One of ordinary skill

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in the art would have been motivated to do so based on the well known use of these elements as taught by Yuen (¶ 35, 42).

### ***Double Patenting***

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 1-25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-40 of copending Application No. 10/576,345 (2007/0207055). Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to a device comprising at least one liquid-capture zone surrounded by non-wetting borders, means for supplying and removing liquid to the capture zone all

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within a box. The claim sets merely differ in the arrangement of limitations within the claim sets. For example, Claim 1 of the instant specification defines a "box" while Claim 33 of the '345 application provides this embodiment. The different arrangement of limitations in the '345 claims does not patentably distinguish the instantly claimed device over that of the '345 application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

16. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Schultz can be reached on (571) 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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